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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/661,268	09/13/2000	Andrew C. Gallagher	81312DMW	8312

1333 7590 09/10/2003

PATENT LEGAL STAFF
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EXAMINER

PATEL, KANJIBHAI B

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 09/10/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/661,268

Applicant(s)

GALLAGHER ET AL.

Examiner

Kanji Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-4 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. Formal drawings filed on 1/23/01 have been approved by the examiner.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation of "using the color weighting factor to modify either the first value **or** the second value " in step d). It is unclear why "or" is used and not "and" because the next step e) requires both the first value and the second value.

Claim 26 recites the similar limitation.

Claims 2-25 and 27-31 are also rejected for the same reasons as being dependent upon the rejected base claims.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6 and 26-27 are rejected under 35 U.S.C. 102(e) as being anticipated by

Gallagher et al. (US 6,453,075 B1).

The applied reference has common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

For claim 1, Gallagher et al. disclose a digital image processing method for enhancing a color digital image (figure 1) composed of a plurality of pixels having color values representative of the image (in figure 2, digital color image has three color channels corresponding to red, green and blue color values, each color channel consists of a two-dimensional array of pixel values) said method comprising the steps of:

a) identifying a local neighborhood of pixels including a pixel of interest (column 2, lines 45-60; X_{ij} corresponds to a pixel of interest and P_{kij} provides a local neighborhood of pixels);

b) using the color values of one or more of the pixels from the local neighborhood to calculate a color weighting factor for the pixel of interest (column 2, lines 45-60), the color weighting factor being a near continuous function (column 6, lines 118-36; nearly

linear tone scale function provides a near continuous function) of the location of the one or more pixels from the local neighborhood in a color space;

c) applying a spatial filter (column 5, lines 1-27) to the values of pixels from the local neighborhood to calculate a first signal value (column 4, lines 14-28; low pass signal reads on a first signal or in figure 3 a pedestal signal provides a first signal) and a second signal value (column 4, lines 13-20; high pass signal reads on a second signal or in figure 3, a texture signal provides a second signal) for the pixel of interest;

d) using the color weighting factor to modify either the first value or the second value (in figure 3, a tone scale function is used to modify first and second signal);

e) generating an enhanced pixel value for the pixel of interest from the first value and second values (in figures 3 and 8, output from an adder, a transformed color channel generates an enhanced pixel value); and

f) repeating steps (a) through (e) for other pixels in the color digital image (column 2, lines 48-60; X_{ij} represents any pixel depending upon the values of indices i and j for which the steps (a) to (e) can be repeated).

For claim 2, Gallagher et al disclose the method, wherein the spatial filter is a function of the pixel values of the local neighborhood (column 5, lines 1-7).

For claim 3, Gallagher et al disclose the method, wherein the spatial filter is a non-linear function of the pixel values of the local neighborhood (column 5, lines 7-27).

For claim 4, Gallagher et al disclose the method, wherein the first signal value predominantly relates to the low spatial frequency information and the second signal value predominantly relates to the high spatial frequency information (at least in figure

4, pedestal signal and texture signal provide low and high spatial frequency information).

For claim 5, Gallagher et al disclose the method, wherein step c) further comprises the steps of applying a spatial filter to the first signal values for pixels in the color digital image to calculate a gradient signal value from the first signal values, and using the gradient signal value to modify either the first signal value or second signal value (120 in figure 5, provides gradient signal value).

For claim 6, Gallagher et al disclose the method wherein the gradient signal values are modified with a single valued function (in figure 5, the non-directional squared gradient signal is modified by the artifact avoidance function applicator 130 i.e., a single valued function).

For claim 26, see the rejection of claim 1 above.

For claim 27, see the rejection of claim 4 above.

Allowable Subject Matter

4. Claims 7-25 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Other prior art cited

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bhaskar (US 6,393,148 B1) discloses a contrast enhancement of an image using luminance and RGB statistical metrics.

Hrytzak et al. (US 5,327,257) discloses a method and apparatus for adaptively interpolating a digital image.

Gallagher et al. (US 6,408,103 B1) disclose method for preserving spatial detail and color content when adjusting the tone scale of a digital color image.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kanji Patel** whose telephone number is (703) 305-4011. The examiner can normally be reached on Monday to Thursday from 8:00 a.m. to 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor **Mehta, Bhavesh** can be reached on (703) 308-5246.

The fax phone for this group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **receptionist** whose telephone number is (703) 305-4700.



Kanji Patel
Art Unit 2625
September 6, 2003